

2.2 NO ACTION ALTERNATIVE

The definition of the No Action Alternative as it relates to both surplus and nonsurplus Pu and HEU was discussed in Section 1.7. The baseline case for the No Action Alternative involves no disposition of surplus Pu and no change in the current storage sites for Pu and HEU. This case is analyzed and referred to as the No Action Alternative in this section. The Preferred Alternative for storage calls for continuing current storage (No Action) of surplus non-pit Pu materials at Hanford, INEL, and LANL, pending disposition.

The No Action Alternative for long-term storage would maintain storage of all weapons-usable fissile materials at existing storage sites using proven nuclear material safeguards and security procedures. This alternative assumes that the corrective actions necessary to ensure compliance with high-priority ES&H requirements identified in the *Plutonium Working Group Report on Environmental, Safety and Health Vulnerabilities Associated with the Department's Plutonium Storage* would be completed. Maintenance at these existing storage sites would be done as required to ensure safe facility operation for the balance of the facility's useful life. DOE would not undertake any new construction projects except those that are considered part of ongoing site operations as portrayed in individual site-specific EISs and site development plans.

Under the No Action Alternative, surplus and nonsurplus Pu materials would remain in place at LANL, RFETS, Hanford, INEL, Pantex, and SRS. HEU would continue to be stored in existing buildings at Y-12 at ORR. Under No Action, it is assumed that HEU from other sites in the DOE Complex would be relocated to Y-12. The Y-12 EA addresses the transportation of this material and the storage of the material for up to 10 years. Nonsurplus HEU would remain in storage at Y-12 under No Action. Nonsurplus HEU materials represent nuclear weapons, secondary components, naval nuclear fuel, and working material. Surplus HEU would be stored at Y-12 until the material is removed for disposition, as is described in the HEU Final EIS. As a result of the ROD from the HEU EIS, storage of some of this surplus HEU may extend past the 10 years specified in the Y-12 EA. Under No Action, the storage facilities would be maintained to ensure safe facility operation. Subsequent NEPA analysis would be performed for continued storage beyond the 10-year period analyzed in the Y-12 EA.

2.2.1 HANFORD SITE

Hanford Site, located in the State of Washington (Figure 2.2.1-1), had 11 t (12.1 tons) of Pu material in September 1994. Of this, approximately 4.0 t (4.4 tons) falls within the scope of this PEIS. This material is stored within the protected vaults and gloveboxes of the Plutonium Finishing Plant (PFP) complex located in the 200 West Area (Figure 2.2.1-2). The remaining Pu materials currently within the PFP consist of solutions and numerous solid compounds such as metals, oxides, fluorides, mixed (Pu and uranium) oxide residues containing less than 50 percent Pu such as ash, and other Pu-containing materials such as plastics and combustibles. Pu inventories associated with irradiated fuel, buried or retrievably stored solid waste, liquid tank and waste residues containing less than 50 percent Pu, are outside the scope of this PEIS.

Preferred Alternative: No Action. Under the No Action Alternative, Hanford would continue to store Pu-bearing materials in the storage vaults and approved vault-type rooms of the PFP that have been assessed in the *Plutonium Finishing Plant Stabilization Final Environmental Impact Statement* (PFP EIS) (DOE/ EIS-0244D).⁷ The *DNFSB Recommendation 94-1 Hanford Site Integrated Stabilization Management Plan* (VHC-EP-0853) calls for transforming the Pu-bearing materials to a stable form that meets the DOE standard *Criteria for Safe Storage of Pu Metals and Oxides* (DOE-STD-3013-94) by 2002 for materials with greater than 50-percent Pu. Some PFP plant systems that provide basic facility services (such as power,

⁷ All Pu materials (both greater than and less than 50-percent Pu) would be stabilized and repackaged, as necessary, to ensure safe storage. The cleanout, stabilization, and storage of readily retrievable Pu materials in the PFP have been assessed in the *Plutonium Finishing Plant Stabilization Final Environmental Impact Statement* (PFP EIS) (DOE/EIS-0244D). Hanford would continue to store residues containing less than 50 percent, which are not within the scope of this PEIS.

ventilation, and heat) would be upgraded for storage operations under the No Action Alternative. [Text deleted.] Hanford would continue to store residues containing less than 50 percent Pu. The unirradiated FFTF fuel pins and assemblies are acceptable “as is” for long-term storage. No further actions are envisioned for these unirradiated materials under the No Action Alternative.

[Text deleted.]

2.2.2 NEVADA TEST SITE

Nevada Test Site, located in the southern part of Nye County in southern Nevada (Figure 2.2.2–1), does not currently store any Pu or HEU within the scope of this PEIS. [Text deleted.] Due to existing available storage space within the P-Tunnel Facility, NTS is being considered for the long-term storage alternatives involving the consolidation of Pu and the collocation of Pu and HEU. These alternatives are described in Sections 2.3.2 and 2.3.3. Site designations and principal facilities at NTS are shown in Figure 2.2.2–2.

Preferred Alternative: No Action. DOE would not add Pu to sites that do not currently have Pu in storage. NTS does not store any Pu within the scope of this PEIS. Therefore, NTS would continue to carry out projected missions described in Chapter 3.

2.2.3 IDAHO NATIONAL ENGINEERING LABORATORY

Idaho National Engineering Laboratory is located near Idaho Falls in southern Idaho (Figure 2.2.3-1). As of February 6, 1996, there were approximately 4.0 t (4.4 tons) of Pu stored in the Zero Power Physics Reactor (ZPPR) and Fuel Manufacturing Facility (FMF) vaults at ANL-W and 0.5 t (0.55 tons) of Pu located in the Idaho Chemical Processing Plant (ICPP). All of this material falls within the scope of this PEIS. Site designations and principal facilities at INEL are shown in Figure 2.2.3-2.

Preferred Alternative: No Action. Under the No Action Alternative, weapons-usable Pu material at ANL-W would continue to be stored in the material forms deemed most stable according to the *ANL-W Plutonium ES&H Vulnerability Assessment Plan* (October 31, 1994). The proposed *Corrective Action Plan* for vulnerability (ANL-W-I-4), involving almost all Pu onsite, calls for the site to store the material in the ZPPR and FMF vaults and maintain accountability pending disposal direction from DOE. Other site corrective action plans deal with the remaining INEL Pu which is in considerably smaller amounts, such as 13 kilograms (kg) (29 pounds [lbs]) requiring repackaging, 70 grams (g) (2.45 ounces [oz]) of surface oxides removed from stored Pu metal and alloys, and 2.7 g (0.095 oz) in sodium test loops.

2.2.4 PANTEX PLANT

Pantex is located in the Texas Panhandle in Carson County along U.S. Highway 60, as shown in Figure 2.2.4-1. Almost all Pu at Pantex is in the form of pits from disassembled nuclear weapons. The Pu inventory of 66.1 t (72.8 tons) at Pantex in September 1994 was the total amount actually at Pantex plus the amount in DoD custody. Currently, Pantex has the physical capacity to store up to 20,000 pits, but DOE has agreed to store no more than 12,000, pending completion of the Pantex EIS. Site designations and principal facilities at Pantex are shown in Figure 2.2.4-2.

Under the No Action Alternative, all site Pu holdings specific to the Storage and Disposition Program would continue to be stored in the Zone 4 facilities. However, if the Stockpile Stewardship and Management Final PEIS preferred alternative for downsizing assembly/disassembly actions is selected and implemented, the Pu pit strategic reserve storage would be moved to Zone 12 by 2005. Pu-bearing materials at Pantex would continue to reside in the material forms and facilities deemed most stable according to the *DNFSB Recommendation 94-1 Pantex Corrective Action Plan*. In accordance with this plan, Pantex will correct ES&H vulnerabilities by improving management and training within the plant and improving some operating structures to reduce the probability of dispersing hazardous material. In order to avoid or greatly reduce the possibility that Pu would be dispersed outside an assembly cell in case of an explosion, facility utility penetrations have been sealed and door seals have been improved. [Text deleted.] To mitigate the consequences of the possible collapse of the roof over Bay 27 in Building 12-26 due to natural phenomena, updated procedures and processes and modification of equipment and facilities would be accomplished.

In concert with its corrective action plan, Pantex is taking to reduce the probability of an operational accident, human error, or equipment failure that could cause failure of pit cladding, and to mitigate the effects of pit cladding failure due to these or other causes, such as aging. Pits would be repackaged in the more robust AT-400A containment vessel, and storage is being converted to a configuration that allows for remote handling and surveillance. To reduce the probability of accident or human error, a more robust weapons operations safety process has been instituted for B61, W56, and W69 weapons dismantlements and will be implemented for others in the near future.

2.2.5 OAK RIDGE RESERVATION

Oak Ridge Reservation is located near Knoxville, Tennessee, as shown in Figure 2.2.5-1. There are two ORR sites that currently store fissile materials within ORR. These sites are Oak Ridge National Laboratory (ORNL) and Y-12. The positions of these sites on ORR are shown in Figure 2.2.5-2.

*Storage and Disposition of Weapons-Usable
Fissile Materials Final PEIS*

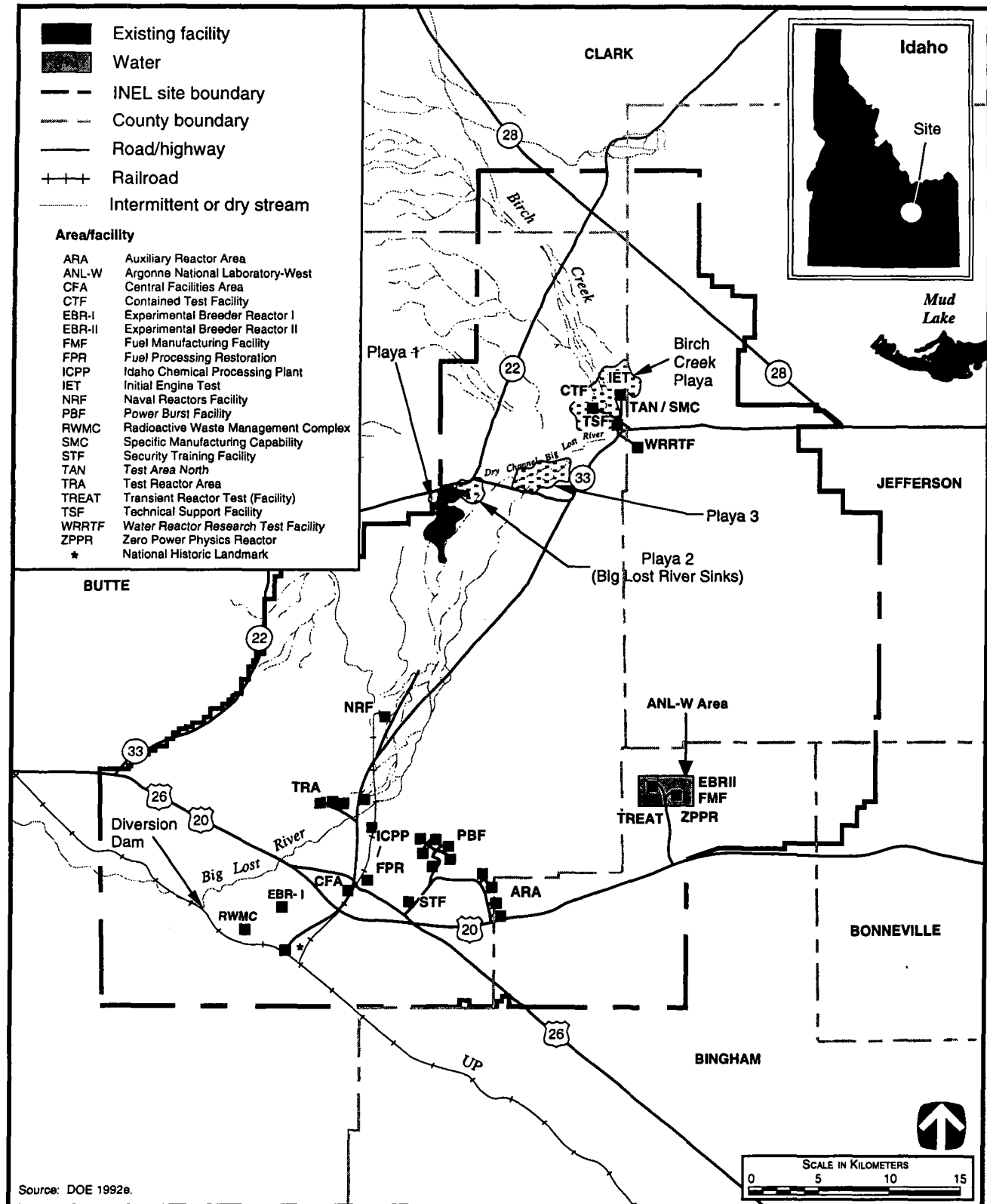


Figure 2.2.3-2. Site Designations and Principal Facilities at Idaho National Engineering Laboratory.

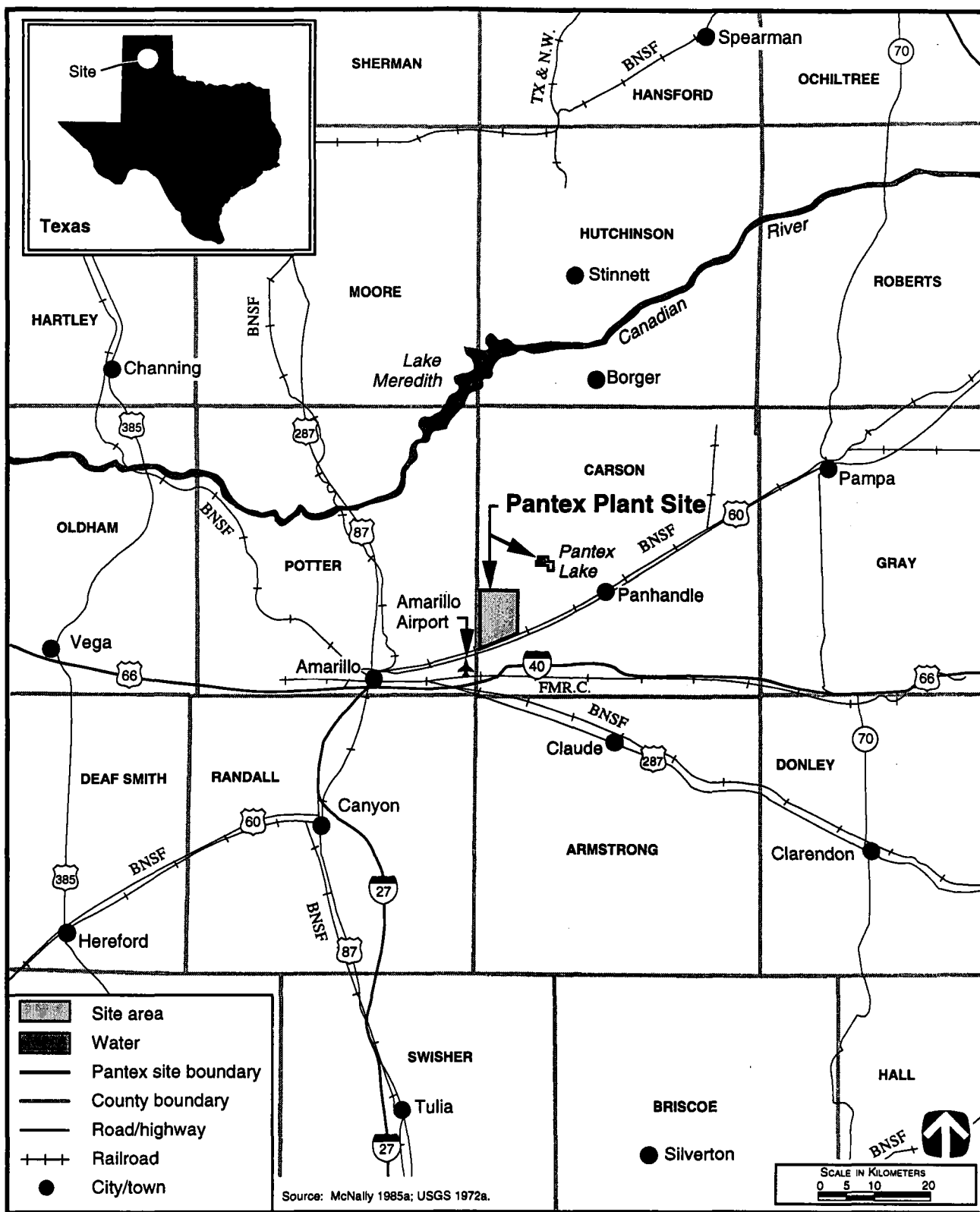


Figure 2.2.4-1. Pantex Plant, Texas, and Region.

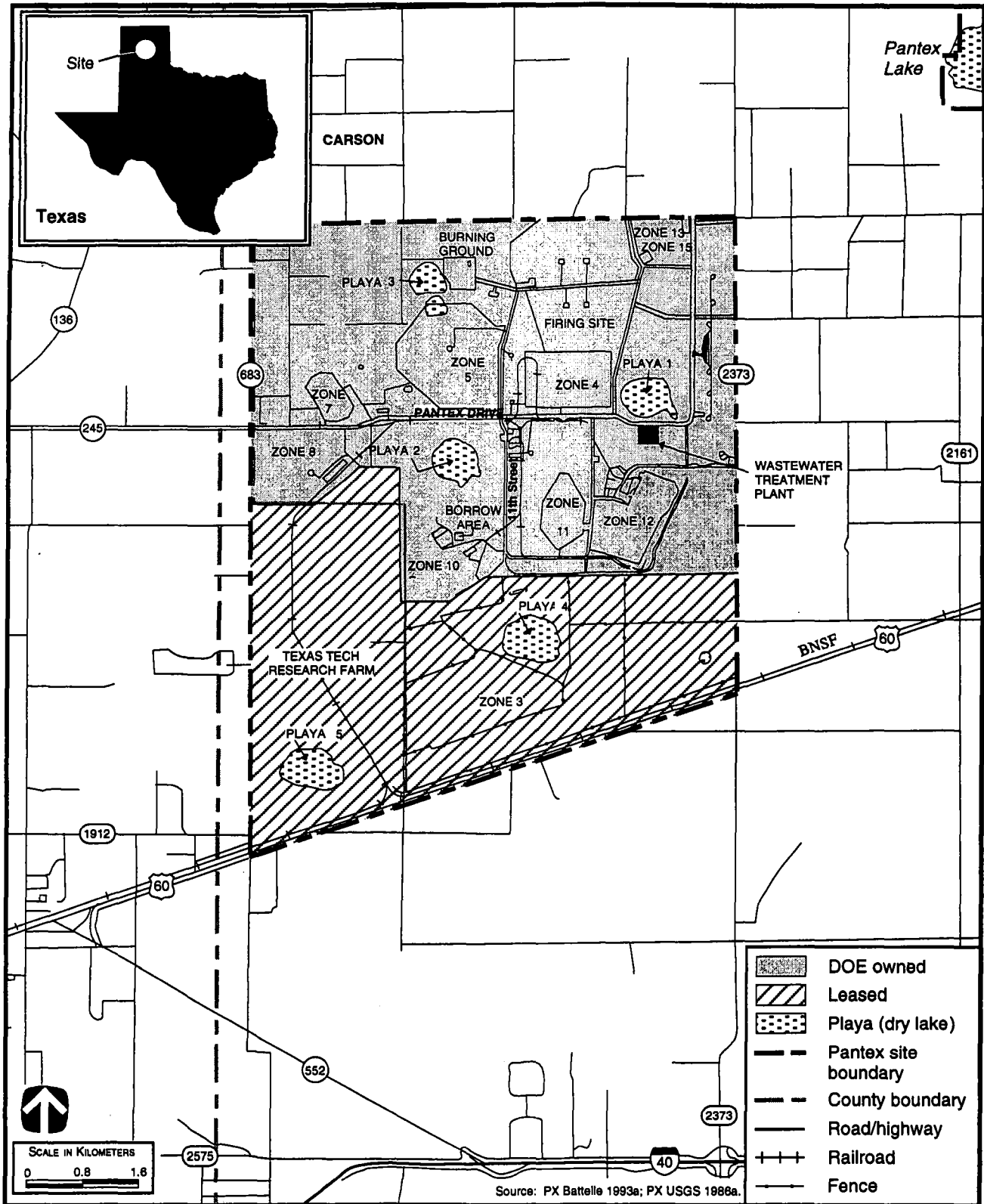


Figure 2.2.4-2. Site Designations and Principal Facilities at Pantex Plant.

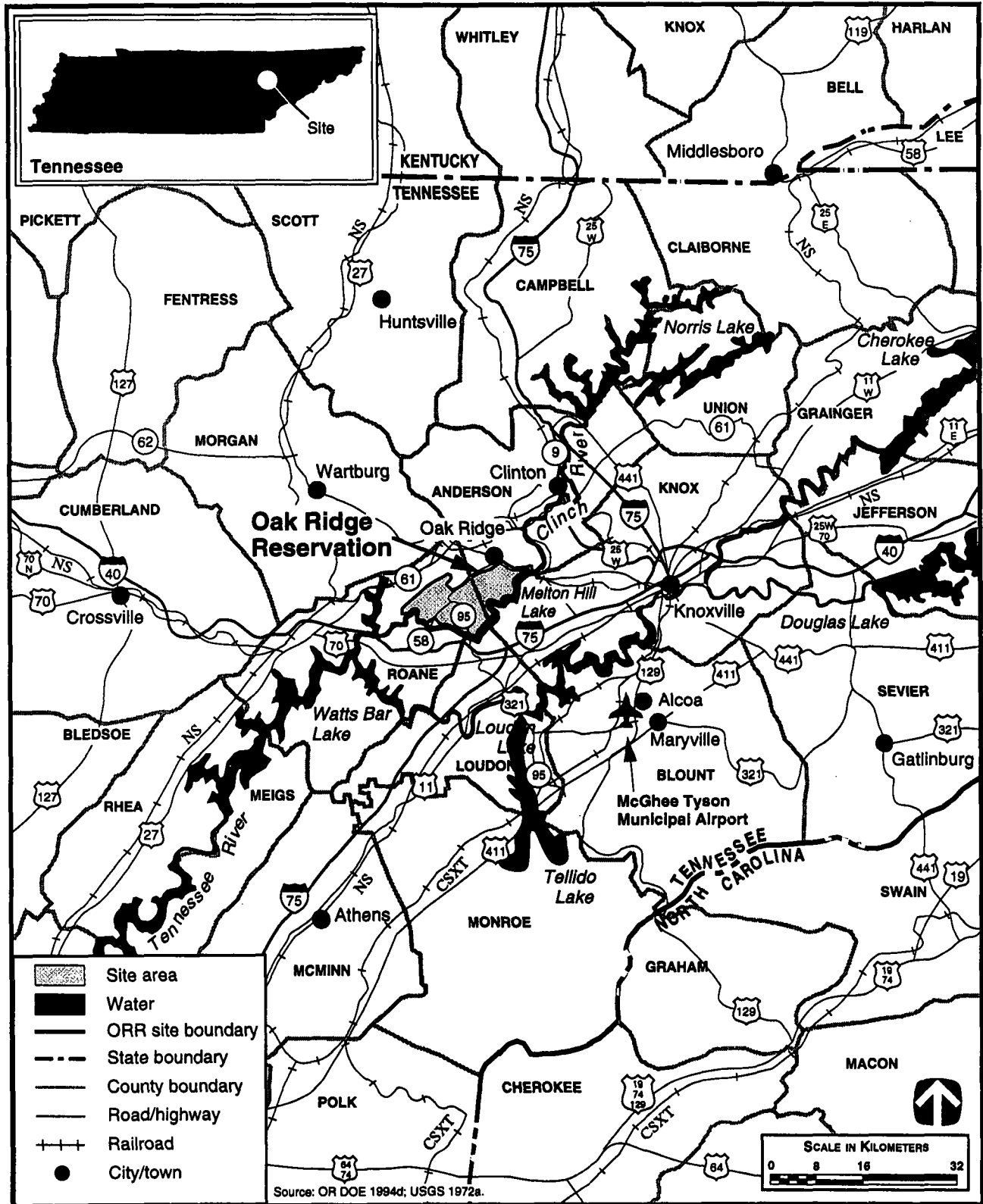
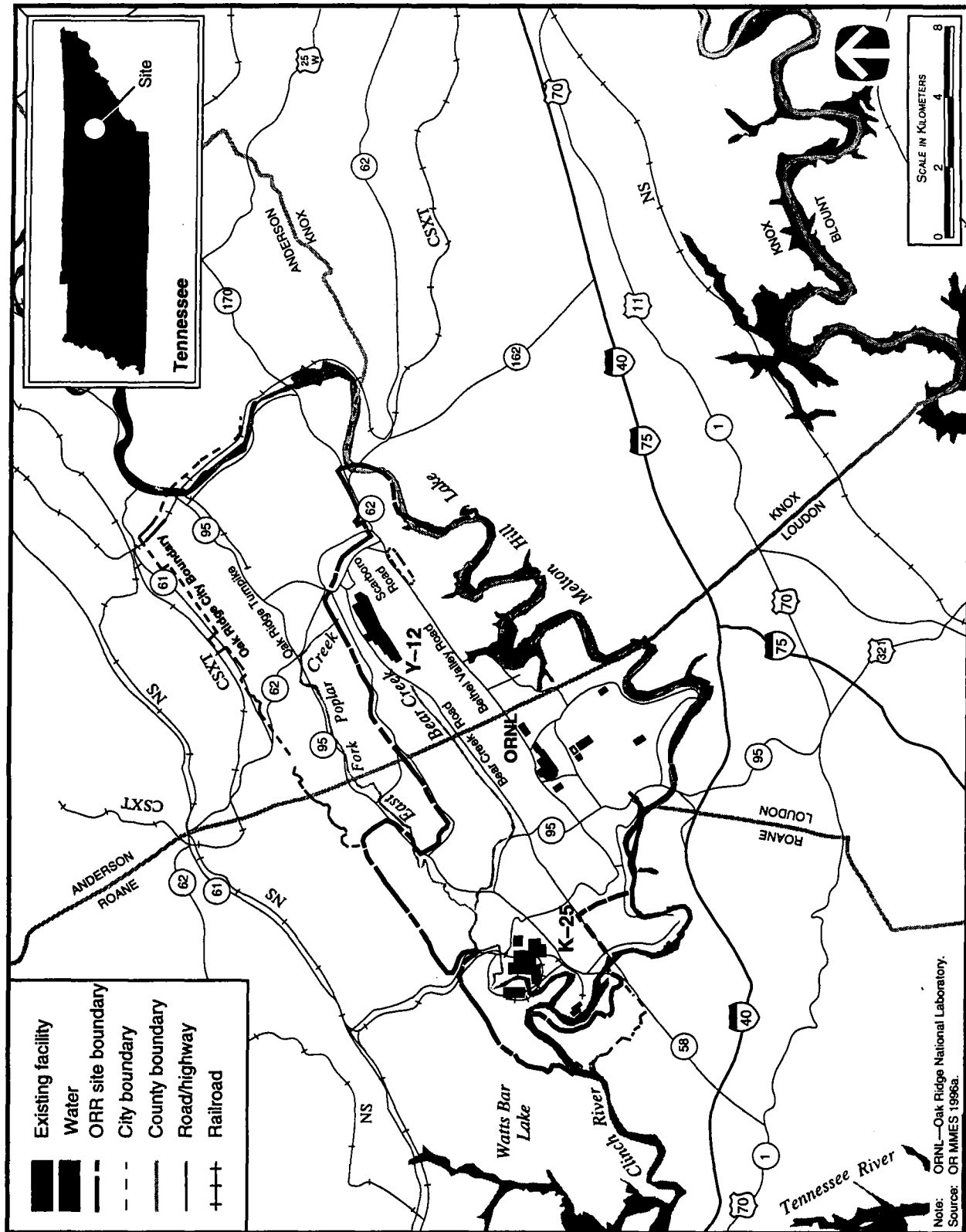


Figure 2.2.5-1.—Oak Ridge Reservation, Tennessee, and Region.

2933-ORR/S&D



2934-ORR/S&D

Figure 2.2.5-2. Site Designations and Principal Facilities at Oak Ridge Reservation.

As of September 1994, approximately 4.1 kg (9.0 lb) of Pu and 1 kg (2.2 lb) of collocated TRU waste was distributed among 19 facilities at ORNL and Y-12. This 5.1 kg (11.2 lb) is in various forms, including sealed sources, oxide, metal, solutions, and scrap/residues. Since the quantity of Pu stored at ORR is relatively insignificant compared to that located at other storage sites, and because it is in the form of waste, none of this material is within the scope of this PEIS.

All nonsurplus HEU currently stored at ORR is within the scope of this PEIS. Under the No Action Alternative, HEU would continue to be stored in existing buildings at Y-12. As of September 1994 the inventory at Y-12 consisted of 168.9 t (186.2 tons) of HEU. The bounding quantity (expected upper limit) of HEU that could be shipped to Y-12 from sites other than Pantex (whose quantity is classified) is an additional 98.4 t (108.5 tons).

Nonsurplus HEU would remain in storage at Y-12 under No Action. Nonsurplus HEU materials represent nuclear weapons, secondary components, naval nuclear fuel, and working material. Surplus HEU would be stored at Y-12 until the material is removed for disposition, as is described in the HEU Final EIS. As a result of the ROD from the HEU EIS, storage of some of this surplus HEU may extend past the 10 years specified in the Y-12 EA. Under No Action, the storage facilities would be maintained to ensure safe facility operation. Subsequent NEPA analysis would be performed for continued storage beyond the 10-year period analyzed in the Y-12 EA.⁸

2.2.6 SAVANNAH RIVER SITE

Savannah River Site, located south of Aiken, SC (Figure 2.2.6-1), had as of September 1994, 2.0 t (2.2 tons) of Pu material that falls within the scope of this PEIS, as well as other fissile materials in various forms which are outside the scope of this PEIS. The materials are in various forms, including Pu solutions, metal and oxides (more than 50-percent Pu), residues and oxides (less than 50-percent Pu), special isotopes, uranium, and spent nuclear fuel. Site designations and principal facilities are shown in Figure 2.2.6-2.

Under the No Action Alternative, SRS would continue to store Pu-bearing materials in the forms and facilities deemed most stable according to the *DNFSB Recommendation 94-1 Savannah River Site Integrated Stabilization Management Plan* (NMPP-PPLS95-0058) and in accordance with the *Spent Fuel Working Group Report on Inventory and Storage of the Department's Spent Nuclear Fuel and other Reactor Irradiated Nuclear Materials and Their Environmental Safety, and Health Vulnerabilities*, Volumes I, II, III, the *F-Canyon Plutonium Solutions Environmental Impact Statement* (DOE/EIS-0219, December 1994), the *Final Environmental Impact Statement, Interim Management of Nuclear Materials* (DOE/EIS-0220, October 1995), and the DOE standard *Criteria for Safe Storage of Plutonium Metals and Oxides* (DOE-STD-3013-94).

Under the No Action alternative, SRS would stabilize and store its various forms of Pu in accordance with the above listed plans for Pu materials as follows:

- *Pu-239 Solutions, F-Area.* The plan, supported by the *F-Canyon Plutonium Solutions Environmental Impact Statement* (DOE/EIS-0219) and the ROD dated February 1, 1995, was to convert this material to Pu metal. The conversion process in F-Canyon was completed in April 1996. The metal product will be stored temporarily in one of the F-Area vaults.
- *Pu-239 Solutions, H-Area.* In the *Final Environmental Impact Statement, Interim Management of Nuclear Materials* (DOE/EIS-0220) and the ROD dated December 12, 1995 (60 FR 65300), and supplemental ROD dated July 1996 (61 FR 6633), DOE determined procedures and processes for stabilizing stored nuclear materials, previously identified through independent reviews conducted by DOE and the DNFSB, that posed environmental, safety, or health vulnerabilities. A second

⁸ Under No Action, DOE may, pursuant to appropriate NEPA review, propose to modify the Y-12 facilities or to build new facilities as necessary to ensure safe storage.

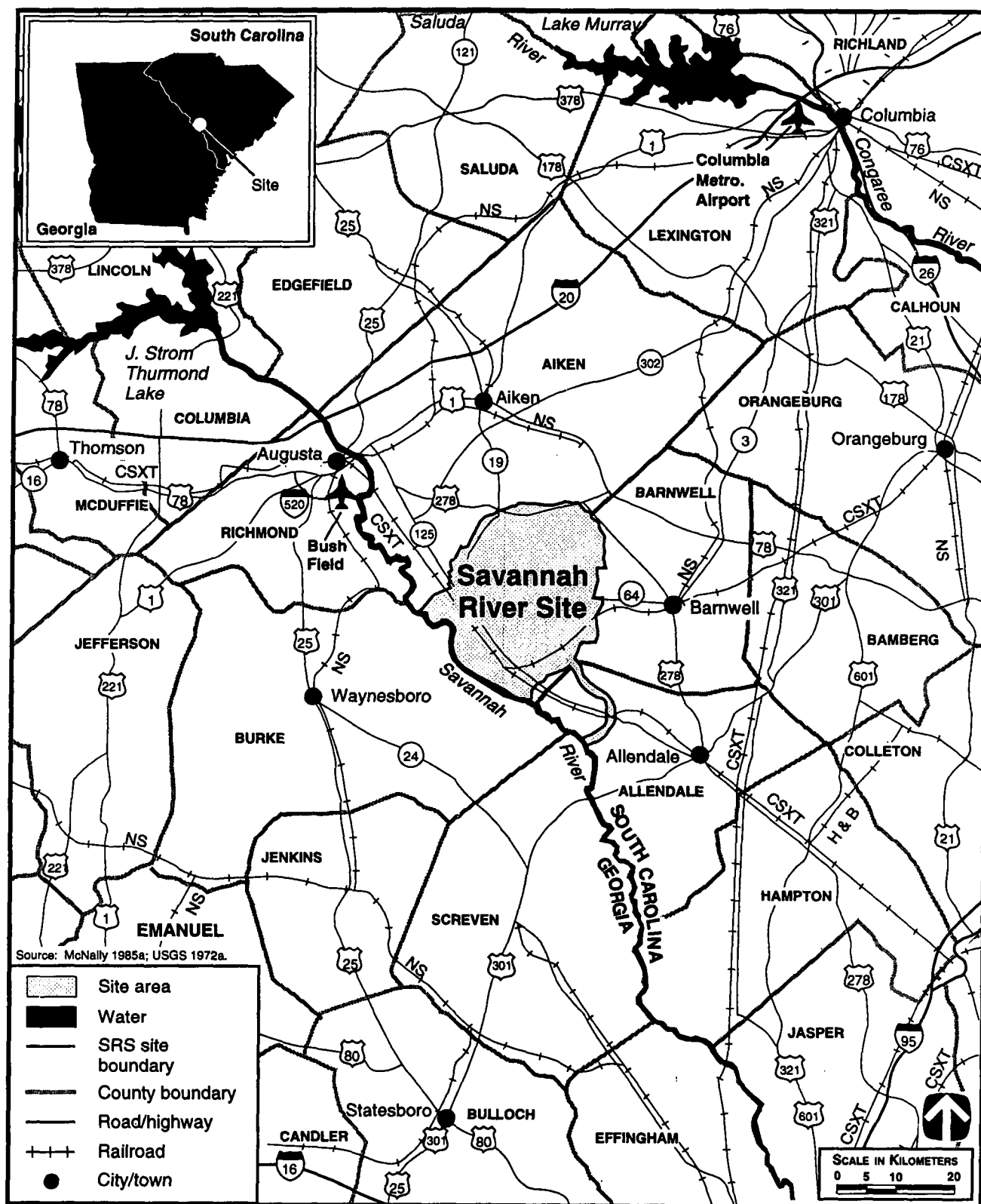


Figure 2.2.6-1. Savannah River Site, South Carolina, and Region.

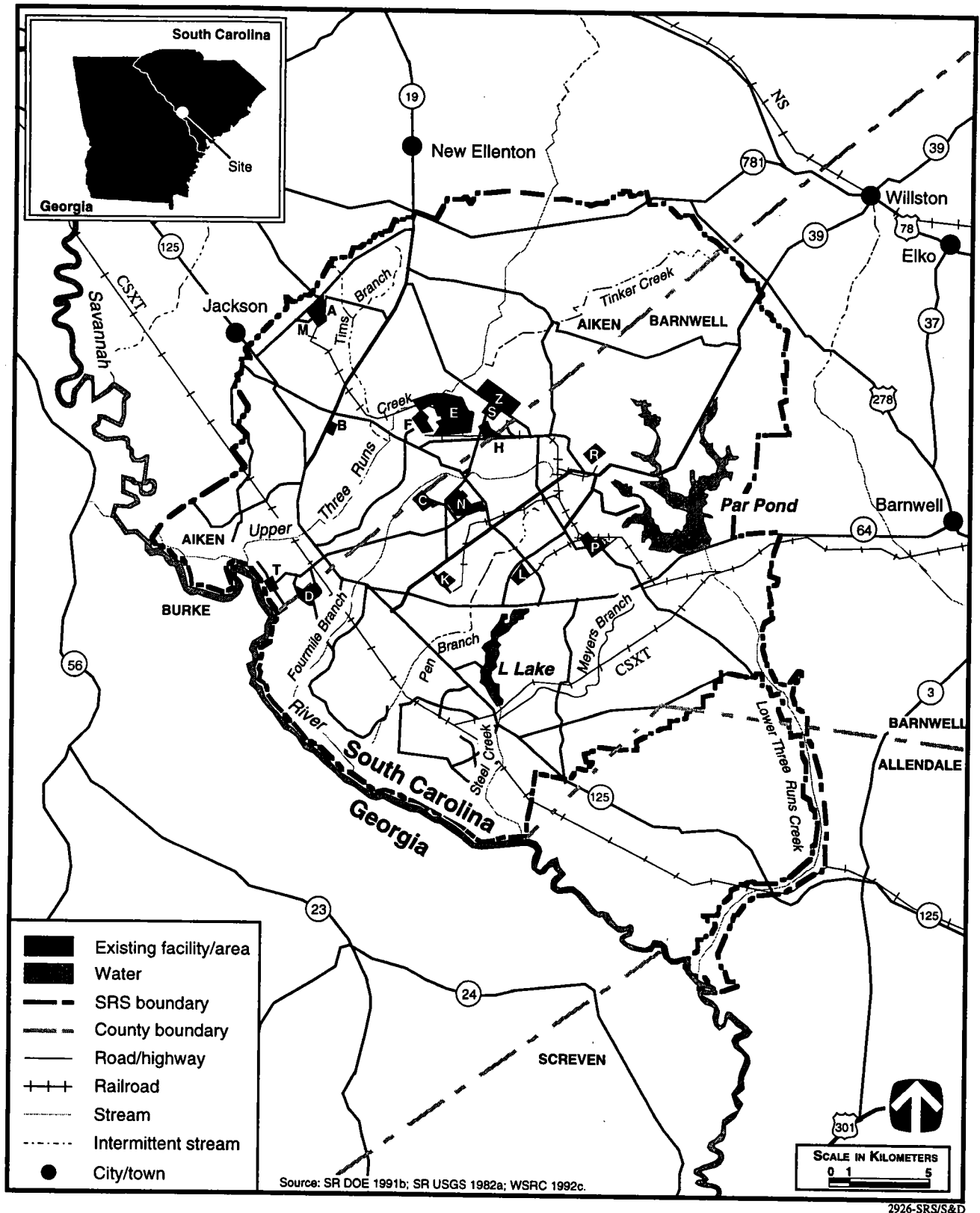


Figure 2.2.6-2. Site Designations and Principal Facilities at Savannah River Site.

supplemental ROD announcing DOE's decision for the stabilization of Pu-239 solutions by conversion to metal at F-Canyon and the FB-Line was published September 13, 1996 (61 FR 48474 through 61 FR 48479).

- *Pu-242. The Final Environmental Impact Statement, Interim Management of Nuclear Materials* (DOE/EIS-0220) and the ROD dated December 12, 1995, categorized certain isotopes of Pu, neptunium, americium, and curium as programmatic. DOE has determined that the Pu-242 from SRS would be useful for future research and development activities.
- *Plutonium metal and oxide resulting from the stabilization actions at SRS.* This material would be stored in accordance with the DOE storage standard (DOE-STD-3013-94). In the ROD dated December 12, 1995, for the *Final Environmental Impact Statement, Interim Management of Nuclear Materials*, DOE decided to construct a new APSF in F-Area. This facility would enable SRS to stabilize and package Pu metals and oxides to meet storage criteria and also provide space for storage of all Pu and special actinide materials. The new facility is expected to be completed by 2001. In the interim, the Pu metals and oxides would be stored temporarily in one of the F-Area vaults.

[Text deleted.]

2.2.7 ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

Rocky Flats Environmental Technology Site, located in northern Jefferson County, Colorado (Figure 2.2.7-1), stored 12.9 t (14.2 tons) of Pu as of September 1994.⁹ The Pu is in three basic forms: metals, oxides, and scrap/residues. The storage of the total Pu inventory at RFETS is within the scope of the storage portion of this PEIS. There are a small number of pits at RFETS that are surplus to national security needs but are still needed for ongoing, non-weapons-related R&D projects at LANL and LLNL. Therefore, these pits will not come within the scope of this PEIS until the R&D projects are completed. It is expected that this work will result in the transportation of these materials to LANL or LLNL, the conversion of the Pu into metal or oxide, and the return of the material to RFETS.¹⁰ At that point, the materials will come within the scope of this PEIS and be stored and dispositioned in accordance with the decisions reached on the storage and disposition of surplus Pu in metal or oxide form. All Pu materials are stored in seven principal facilities: Buildings 371, 559, 707, 771, 776/777, 779, and 991. Site designations and principal facilities are shown in Figure 2.2.7-2.

In response to the DNFSB's Recommendation 94-1, and as addressed in the DOE *Plutonium Working Group Report on Environmental, Safety and Health Vulnerabilities Associated with the Department's Plutonium Storage*, the Pu metal and oxide at RFETS will be placed in a stable long-term (50-year) storage configuration. This storage configuration is in accordance with the DOE storage standard (DOE-STD-3013-94). DOE-STD-3013-94 does not apply to pits. In addition to the stabilization of this material, actions for resolving the Pu vulnerabilities have been identified as part of the RFETS *Site Integrated Stabilization and Management Plan*, and are being implemented.

Of the total amount of Pu in storage at RFETS, 11.9 t (13.1 tons) has been declared surplus to national security needs.¹¹ The amount of surplus in each of the basic forms is: metal 5.7 t (6.3 tons); oxides 1.6 t (1.8 tons); and scrap/residues 4.6 t (5.1 tons). Only a portion of the Pu is currently within the scope of this PEIS because the residues¹² are not in a weapons-usable form. Under proposed stabilization activities, all or portions of the non-weapons-usable material could be converted to a weapons-usable form.

⁹ Secretary of Energy's Openness Initiative, December 7, 1993.

¹⁰ Under the Preferred Alternative, the RFETS material could be shipped directly from LANL or LLNL to Pantex.

¹¹ Secretary of Energy's Openness Initiative, February 6, 1996.

¹² Scrub alloy, ash, salts, dry residues, wet residues, and classified shapes.

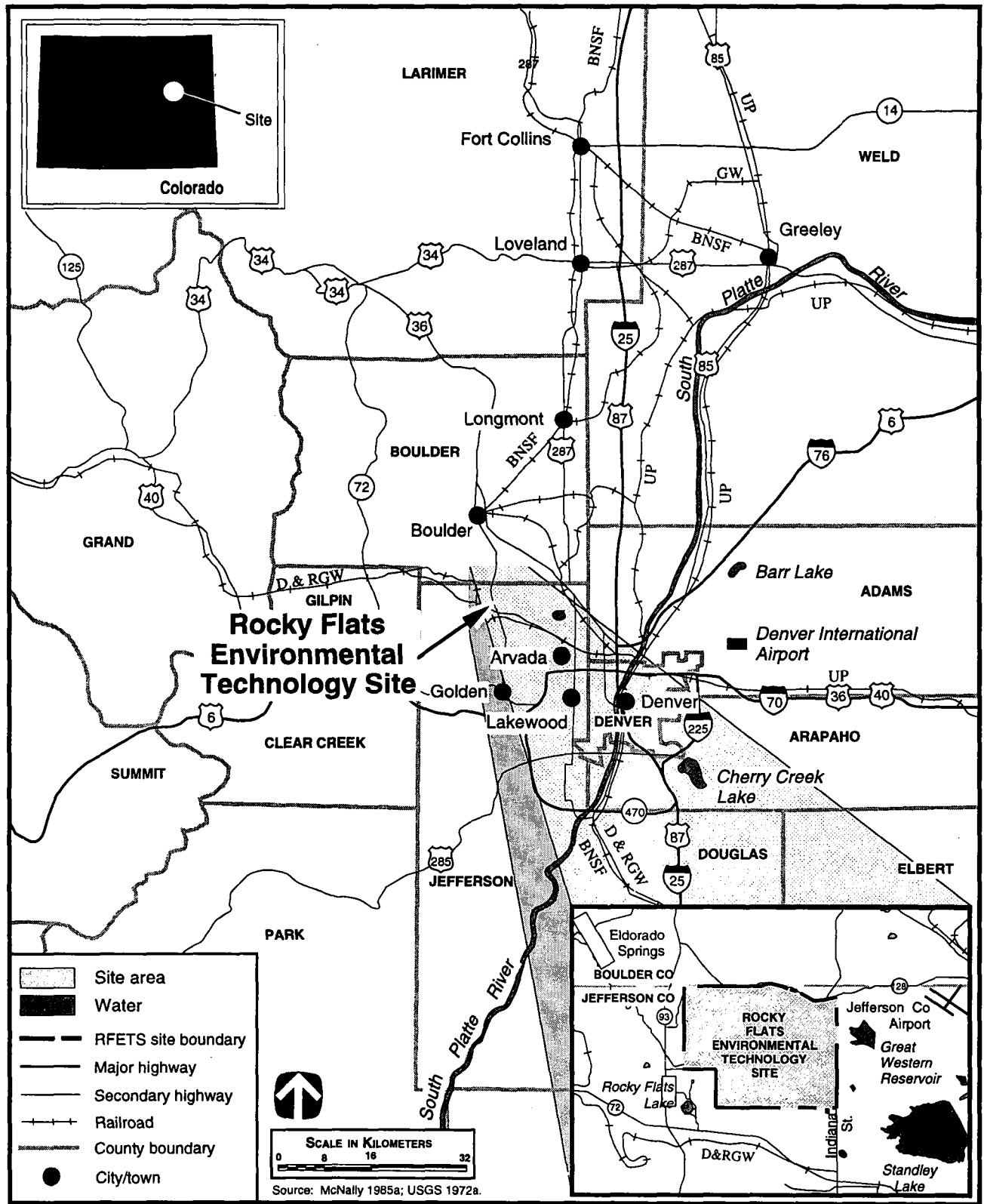


Figure 2.2.7-1. Rocky Flats Environmental Technology Site, Colorado, and Region.

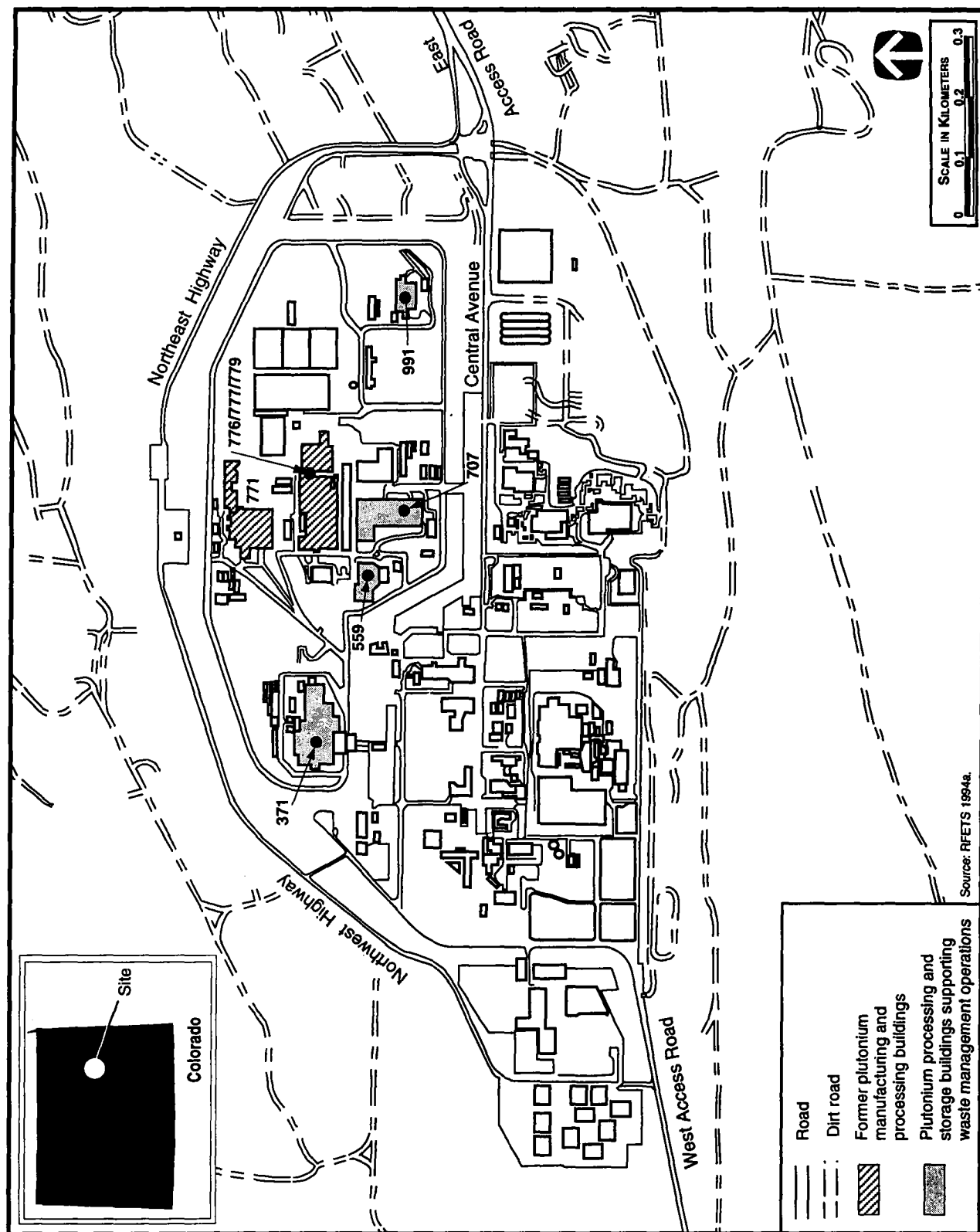


Figure 2.2.7-2. Site Designations and Principal Facilities at Rocky Flats Environmental Technology Site.

Under the No Action Alternative, Pu-bearing materials at RFETS would be stabilized and converted to metal and/or oxide form and stored in existing, upgraded existing, or new facilities. Some Pu materials would be stabilized by conversion into a weapons-usable form and/or a waste form.

2.2.8 LOS ALAMOS NATIONAL LABORATORY

Los Alamos National Laboratory is located in north-central New Mexico adjacent to the town of Los Alamos, as shown in Figure 2.2.8-1. The Technical Areas (TAs) at LANL are shown in Figure 2.2.8-2. The inventory of Pu materials in storage at LANL as of September 1994, was 2.7 t (3.0 tons). This material is stored at 24 facilities and is in various physical and chemical forms, including metal, pits, fabricated weapons shapes, Pu compounds and alloys, and a broad range of scraps/residues (mostly solids). There are a number of sealed sources used for radiation instrument calibrations, neutron sources, and targets for experiments. In addition, small quantities of Pu exist in process equipment and at a few facilities within controlled access areas. Approximately 90 percent of the Pu at LANL is stored in packages located in TA-55. Of the total LANL Pu inventory, approximately 1.5 t (1.7 tons) falls within the scope of this PEIS.

Research at the TA-55 facility includes Pu recovery processes, Pu metal fabrication, Pu-238 general purpose heat source and radioisotope thermoelectric generation production, and advance fuel fabrication. Pu analytical operations are also conducted in the Chemistry and Metallurgy Research building, which has laboratories, hot cells, a waste assay facility, and a vault. The Los Alamos Critical Experiments Facility, remotely located in TA-18, uses Pu in nuclear criticality experiments.

Preferred Alternative: No Action. Under the No Action Alternative, weapons-usable Pu materials would continue to be stored in the upgraded Nuclear Material Storage Facility, in stabilized form pursuant to DNFSB Recommendation 94-1, within TA-55. Storage would be in accordance with LANL's proposed *Corrective Action Plan* for addressing ES&H vulnerabilities associated with Pu storage.

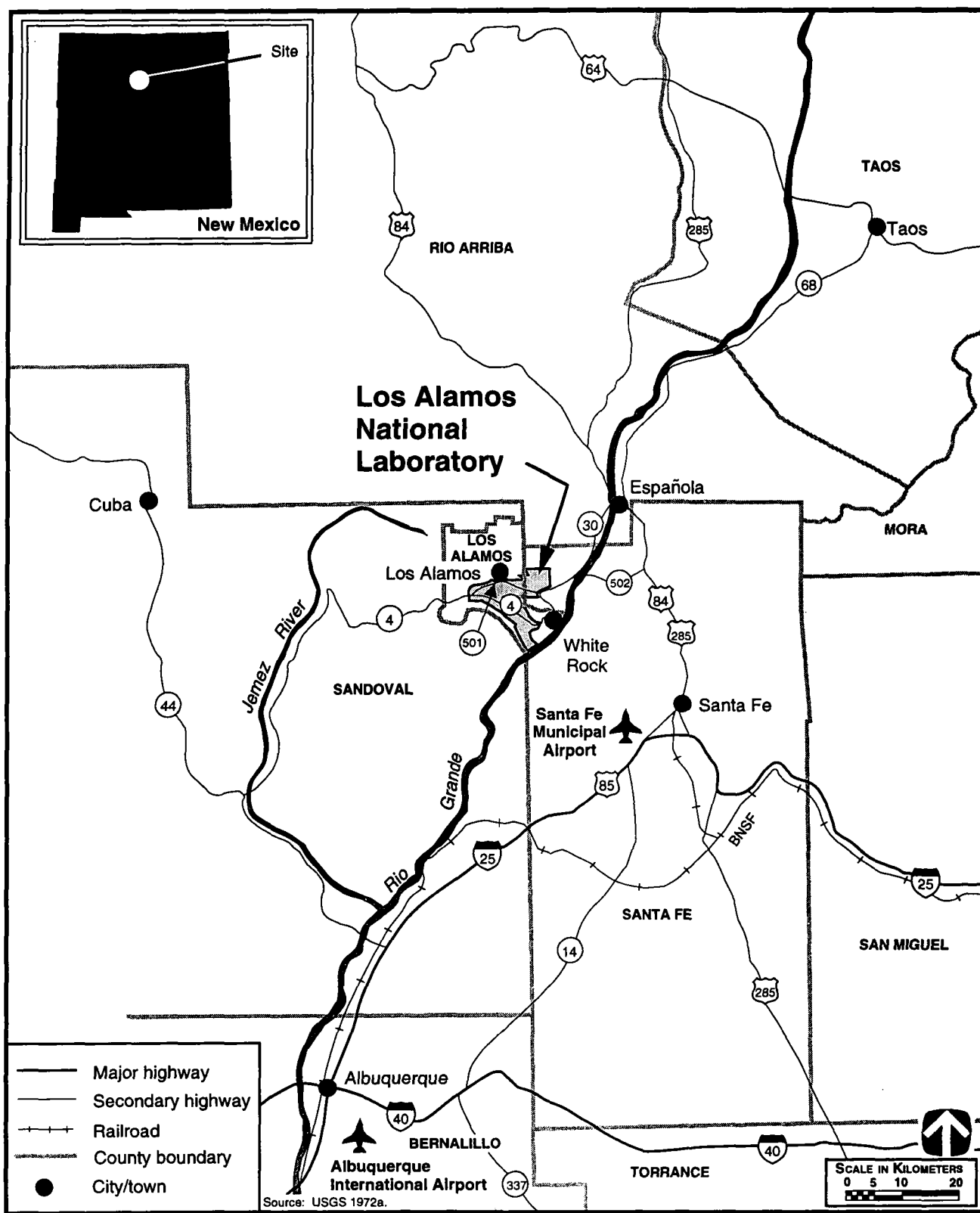


Figure 2.2.8–1. Los Alamos National Laboratory, New Mexico, and Region.

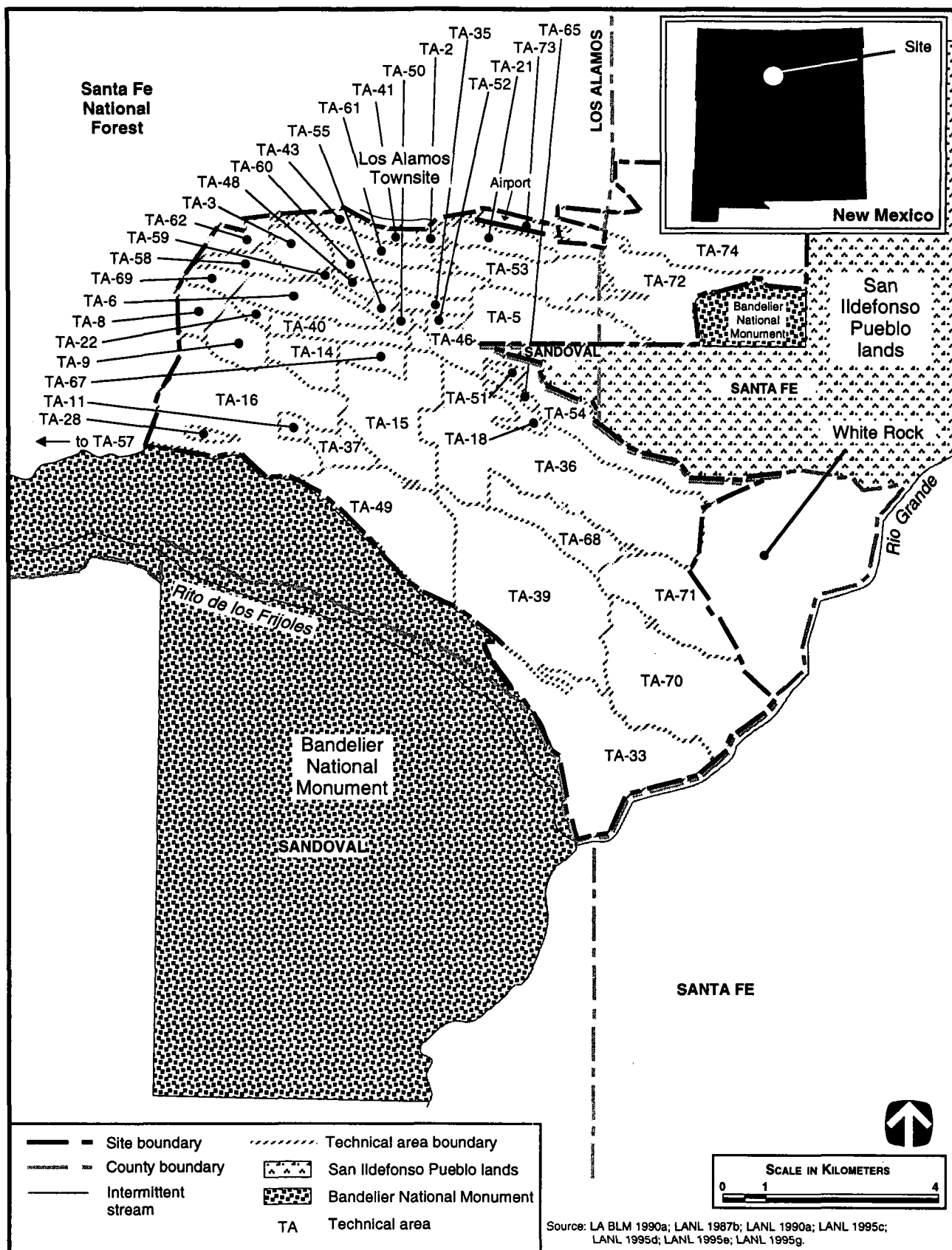


Figure 2.2.8-2. Site Designations and Principal Facilities at Los Alamos National Laboratory.